CARDIAC STRUCTURE AND FUNCTION DIFFER BY ETIOLOGY IN LONGSTANDING PULMONIC REGURGITATION

Poster Contributions
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Authors: Michael Zdradzinski, Athar Qureshi, Robert Stewart, Gosta Pettersson, Richard Krasuski, The Cleveland Clinic, Cleveland, OH, USA

Background: Patients with tetralogy of Fallot (TOF) following complete repair and pulmonic stenosis (PS) after surgical valvotomy often develop significant pulmonic regurgitation (PR) that eventually necessitates valve replacement (PVR). Though several criteria exist for the timing of PVR in TOF (most of which are grounded in MR measurements), it is unclear when to intervene in the valvotomy patient and whether TOF data can be applied. We sought to prospectively examine cardiac structure and function using cardiac MR in these 2 groups of patients.

Methods: From a cohort of 109 patients with moderate or greater native valve PR by echo and no more than mild right ventricular (RV) outflow narrowing referred to an adult congenital heart clinic, 63 patients (39 TOF and 24 PS) with optimal MRI assessment were selected for further analysis.

Results: Patients with TOF and PS were similar in terms of age, sex, BMI and cardiovascular risk factors. No difference in time from surgery was seen between TOF and PS (32±9 vs. 36±11 years, p=0.152), though palliative shunting preceded repair in 46% of TOF patients compared to only 4% of PS patients (p<0.001). NYHA function class was similar at presentation (1.5±0.6 vs. 1.6±0.7, p=0.786). Despite PR fractions being similar (37±22% vs. 32±19%, p=0.394), right ventricular (RV) ejection fraction was considerably worse in TOF patients (41±11 vs. 49±8%, p=0.001), as was left ventricular ejection fraction (52±10% vs. 59±7%, p=0.002). Aortic root and ascending aortic diameters trended toward being larger in TOF (4.0±0.6 vs. 3.1±0.3, p<0.001 and 3.6±0.8 vs. 3.0±0.6 cm, p=0.054 respectively).

Conclusions: Despite similar PR severity and symptoms over 30 years after repair, post-valvotomy patients have considerably fewer morphologic changes. This implies anatomic distortion above and beyond the effect of PR in TOF patients. These findings suggest that the 2 disorders are different and that guidelines developed for management of PR in TOF may not readily apply to PR in post-valvotomy patients.